

NOTES

THE DISTRIBUTION OF LEAF MORPHS IN *ALLIUM CRATERICOLA* EASTW.—DALE W. MCNEAL, Biological Sciences Department, University of the Pacific, Stockton, CA 95211.

Allium cratericola Eastw., a California endemic, is represented in the southern half of the state by several populations, all of which produce two leaves per scape. Populations from northern portions of the state tend to have one leaf per scape, though a population from Lake Co. and one from Glenn Co. have two and a population from Colusa Co. is mixed in this regard. As reported earlier (Mortola and McNeal, *Aliso* 11:27–35, 1985) all populations of *A. cratericola* are $n = 7$ except for a single population from volcanic soil on Table Mountain in Butte Co., which is $n = 14$. In the Coast Ranges there has been a large disjunction in the known distribution of *A. cratericola*. Several populations occur north of San Francisco Bay including the one containing both one- and two-leaved individuals on serpentine soil in Colusa Co., two-leaved populations in adjacent eastern Lake Co. on serpentine, and one-leaved populations on serpentine in western Lake Co., and on volcanic soils in Napa Co. The species next occurs in two-leaved populations on soils derived from sedimentary rock in Ventura Co.

Recently, while annotating *Allium* specimens from the herbarium at Pinnacles National Monument, I encountered a single sheet of what appeared to be *A. cratericola*. The specimen was well past anthesis and the leaves were missing, making it impossible to determine leaf number. With the permission of the National Park Service I visited the original collection site on the Balconies Formation in the Monument in late March, 1990 to re-collect the species (*McNeal 3659*, CPH), confirm its identity, determine leaf number, and obtain bud material for chromosome counts. Further, at the suggestion of the Park Service I visited a geologically similar site on the northeast side of South Chalone Peak, at the south end of the Monument, 7.5 km south of the Balconies site. Here I discovered a second population (*McNeal 3660*, CPH). Both collection sites contained populations of two-leaved individuals and were located on loose talus slopes derived from Miocene volcanic rock at 625 m and 875 m, respectively. The Monument superintendent later reported the discovery of a population of approximately 100 individuals on the north slope of North Chalone Peak in similar habitat (Selznick pers. comm.)

The chromosome number of the South Chalone Peak population was determined to be $n = 7$ from aceto-orcein squashes of pollen mother cells from fresh buds. Buds from the Balconies were too advanced to get counts. This population will be counted from bulbs grown at Stockton, CA next spring. There is no reason to suspect that the chromosome number in this population will differ from the South Chalone Peak population.

Allium cratericola is found on a variety of soils, but generally in barren areas where edaphic or other environmental factors result in reduced competition from other species. On the basis of our previous study (Mortola and McNeal loc. cit.) and these new collections I have prepared a map (Fig. 1) showing the distribution of one- and two-leaved populations of *Allium cratericola*. Because the leaves tend to break off at the soil level even after the plants have been pressed and because most collectors do not note the leaf number on their collections, this character is often difficult to determine in herbarium material. The collections represented on the map include the known distribution of the species; leaf numbers have been determined either from intact specimens or from careful counting of leaf bases where the blades were broken off.

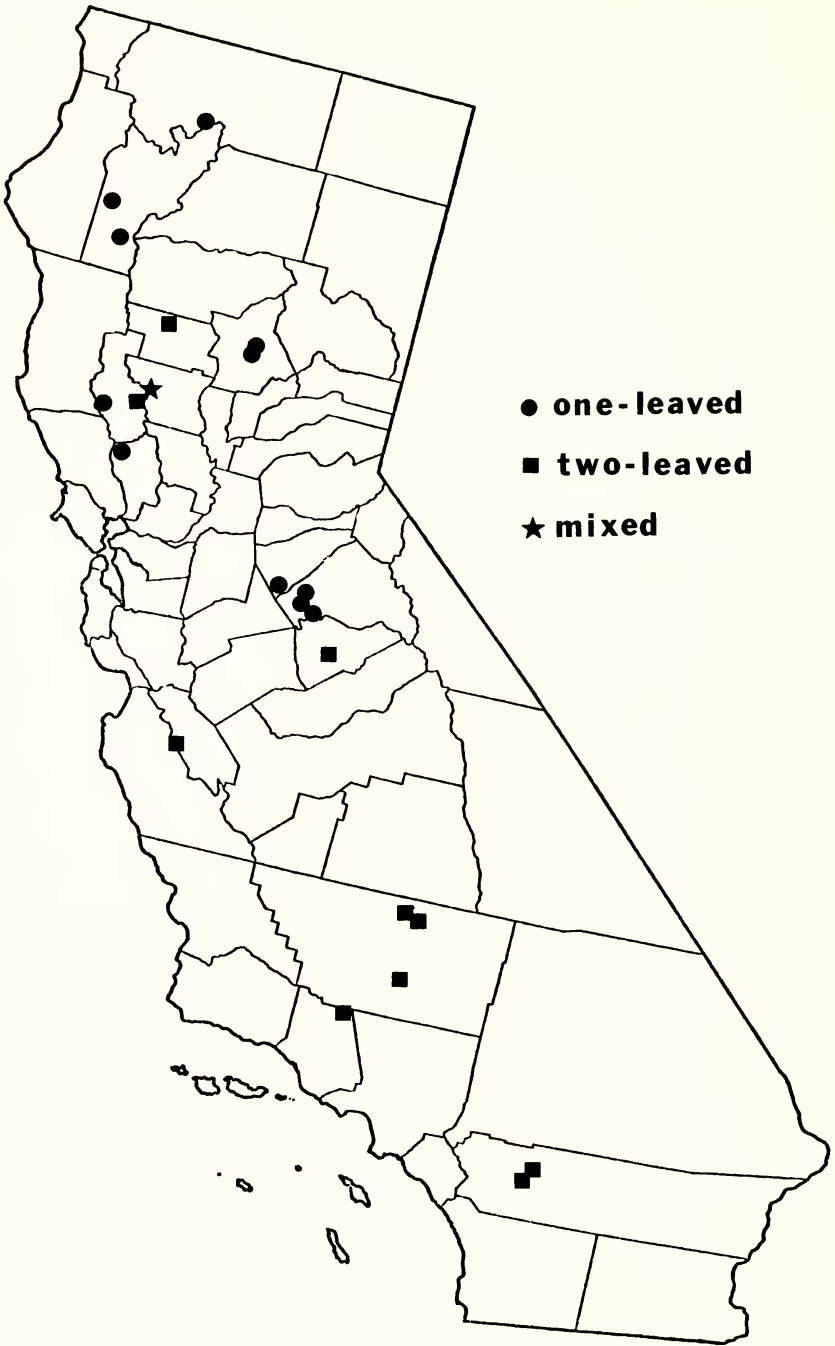


FIG. 1. Distribution of *Allium cratericola* leaf morphs.

No obvious environmental factor or combination of factors explains the distribution of one- and two-leaved forms. As the map indicates, however, the two-leaved form has the more southern distribution, with all but three of the known populations occurring south of latitude 37°30'N. Except for the mixed population in Colusa Co., several collections from Walker Ridge in eastern Lake Co., and a single sheet (*Stebbins 8003*, WS) from Red Mountain in Glenn Co., all of the northern populations are one-leaved.

Some herbarium labels report that the eastern Lake Co. population is mixed with regard to leaf number; however, a careful field survey indicates that this is not the case. An unusual feature of this population is the frequent withering of one leaf well before the other. As this first leaf breaks off, the plant appears to have only a single leaf, and very careful observation of the leaf base is required to detect the second.

The Colusa Co. population (*Mann s.n.* DAV, WS), on the other hand, definitely has a small percentage of one-leaved individuals. These appear to be smaller and to have smaller bulbs than the two-leaved plants and may represent young plants blooming for the first time, but they are definitely present and have not been noted in any other population.

Leaf number alone does not seem to be a reliable character for recognizing taxa in *Allium* (Mortola and McNeal loc. cit.). The occurrence of a mixed population of *Allium cratericola* with regard to the number of leaves per bulb and the lack of any other consistent characters which separate the two forms argue that they are conspecific and do not deserve recognition as separate taxa, even at the varietal level.

I thank the National Park Service for their cooperation and Steve DeBenedetti for his assistance in the field. Critical reviews by R. M. Beauchamp and T. D. Jacobsen are deeply appreciated. A list of ca. 110 herbarium specimens, examined in preparing this distribution map, is available from the author.

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TRANSFER OF *MAHONIA TRIFOLIOLATA* VAR. *GLAUCA* TO *BERBERIS*.—JOSEPH E. LAFERRIÈRE, Department of Ecology and Evolutionary Biology, University of Arizona, Tucson, AZ 85721.

While I was preparing the treatment of the Berberidaceae for the upcoming Manual of the Vascular Plants of Arizona, I learned that one of the names to be included in the work had never been formally transferred from *Mahonia* to *Berberis*. Reasons for preferring the latter generic name are discussed by Moran (Phytologia 52:221–226, 1982) and Laferrière & Marroquín (Madroño 37, in press, 1990). Validation of this transfer is as follows:

Berberis trifoliolata Moric. var. *glauca* (I. M. Johnston) M. C. Johnston ex Laferrière, comb. nov.

Berberis trifoliolata Moric. var. *glauca* (I. M. Johnston) M. C. Johnston in D. S. Correll & M. C. Johnston, Vascular plants of Texas 655, 1970, nomen nudum.—*Mahonia trifoliolata* (Moric.) Fedde var. *glauca* I. M. Johnston, J. Arn. Arbor. 31:190, 1950.

Berberis trifoliolata Hartweg ex Lindl., Bot. Reg. 27:misc. 68, 1841.—*Mahonia trifoliolata* (Hartweg ex Lindl.) Lavallée, Arboretum Segrezianum 16, 1877.

Berberis trifoliolata var. *glauca* is known from southeastern Arizona to central Texas to Hidalgo (Ahrendt, J. Linn. Soc. Bot. 57:1–410, 1961; Marroquín, Ph.D. diss., Northeastern University, Boston, 1972). It differs from var. *trifoliolata* by its glaucous, minutely papillose epidermis. The latter is known only from southern and central Texas. M. C. Johnston (Vascular plants of Texas: a list, updating the manual of the vascular plants of Texas, 2nd ed., 1990) suggested that var. *glauca* should not